7. Maximo

Program Name: Maximo.java **Input File: maximo.dat**

A set is defined as a collection of well-defined and distinct objects. For example, the set A={1,2,3} has 3 elements, those elements being: 1, 2, and 3. A set A is a subset of another set B if all elements of the set A are elements of the set B. For example, given A={1,2,3} and B={1,2,3,4,5,6}, A is a subset of B, since all the elements of A are also elements of B. The intersection of two sets is defined as the set containing all the elements that are common to both A and B. For example, given A={1,2,3,4,5} and B={3,4,5,6,7}, the intersection of A and B would be the set {3,4,5}. So if A is a subset of B, then the intersection of A and B is simply A. If A is a subset of B and B is a subset of A, then the two sets are equal, and their intersection would be either A or B (since they are the same set).

Maximo needs your help writing a program that given two sets A and B, will determine if A is a subset of B, if B is a subset of A, if A and B are equal, or if neither set is a subset of the other. If neither set is a subset of the other, Maximo would like to know what their intersection is. Can you help him with this?

Input: Input starts with a line containing an integer N (1<=N<=10), the number of test cases. Each test case consists of two lines. The first line will contain a set A, and the second line will contain a set B, both of positive integers between 1 and 100 (inclusive) inside of curly braces. The sets each contain between 1 and 100 distinct elements. Data is comma separated with no spaces.

Output: If sets A and B are equal (meaning A is a subset of B and B is a subset of A), output **"Set A is equal to Set B"**. If set A is a subset of B only, output **"Set A is a subset of Set B"**. If set B is a subset of A only, output **"Set B is a subset of Set A"**. If none of the above are true, output **"Neither set is a subset of the other. Their intersection is:"** followed by the intersection of the two sets in numerical order. Intersection output is to be comma separated and enclosed in curly braces. If the intersection has no elements the intersection is the empty set {}. All output for each test case should be printed on one line per each case.

Sample Input:

```
7
A={1,2,3,4,5,6,7,8}
B={3,2}
A={1,2,3,6,7,9,11,12}
B={3,2,1}
A={2,3}
B={2,1,3}
A={1,3}
B={2,1}
A={1,2,3,4,5}
B={9,8,7,6}
A={1,3,5,7,9}
B={3,1,9,5,7}
A={1,4,5}
B={5,1,6}
```

Sample Output:

```
Set B is a subset of Set A
Set B is a subset of Set A
Set A is a subset of Set B
Neither set is a subset of the other. Their intersection is: {1}
Neither set is a subset of the other. Their intersection is: {}
Set A is equal to Set B
Neither set is a subset of the other. Their intersection is: {1,5}
```